AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A fuel monitoring system for use in a transportation system, the fuel monitoring system comprising:

a fuel leak detector comprising

a colorimetric chemical monitor configured to change color in response to presence of a fuel, and

an optical reader comprising

a first optical detector configured to monitor a color of a first portion of the colorimetric chemical monitor based on an intensity of first reflected light from the colorimetric chemical monitor, and

a second optical detector configured to monitor a color of a second portion of the colorimetric chemical monitor based on an intensity of second reflected light from the colorimetric chemical monitor; and

an alarm system in electronic communication with the fuel leak detector and configured to provide an alarm when a color of the colorimetric chemical monitor changes by a predetermined amount,

wherein there are different reagents in the first and second portions.

2. (Previously Presented) The system of claim 1 wherein the colorimetric chemical monitor comprises a porous substrate impregnated with mercurous chloride/methylcellulose reagent in either the first or second portion.

3. (Previously Presented) The system of claim 1 wherein the colorimetric chemical monitor comprises a porous substrate impregnated with N-phenylanthranilic acid/titanium dioxide reagent in either the first or second portion.

4. (Previously Presented) The system of claim 3 wherein a portion of the porous substrate is impregnated with mercurous chloride/methylcellulose reagent.

5. (Original) The system of claim 2 wherein the porous substrate comprises paper.

6. (Previously Presented) The system of claim 1 wherein the optical reader further comprises a light source configured to illuminate a first surface of a porous substrate impregnated with a first reagent reactive with a hypergolic fuel component, the light source further configured to illuminate a second surface of the porous substrate impregnated with a second reagent reactive with a hypergolic fuel component, wherein the first optical detector is configured to receive light reflected from the first surface of the porous substrate and, in response, output a first voltage proportional to the intensity of first reflected light, and wherein the second optical detector is configured to receive light reflected from the second surface of the porous substrate and, in response, output a second voltage proportional to the intensity of second reflected light, wherein the first surface is the first portion, and the second surface is the second portion.

7. (Original) The system of claim 6 wherein the light source comprises a light emitting diode configured to emit light having a wavelength of about 455 nm.

8. (Currently Amended) The system of claim 6 wherein the optical reader further comprises:

a first comparator comprising

a first input node configured to electrically communicate with the first optical detector,

a second input node configured to electrically communicate with a first reference voltage, the first reference voltage corresponding to a first voltage output by the first optical detector receiving light reflected from the first surface of the porous substrate in the absence of a hypergolic fuel component, and

a first output node configured to output a first output voltage proportional to a difference between voltages at the first and second input nodes; and

a second comparator comprising

a third input node configured to electrically communicate with the second optical detector[[ ]],

a fourth input node configured to electrically communicate with a second reference voltage, the second reference voltage corresponding to a second voltage output by the second optical detector receiving light reflected from the second surface of the porous substrate in the absence of a hypergolic fuel component, and

a second output node configured to output a second output voltage proportional to a difference between voltages at the third and fourth input nodes.

9. (Previously Presented) The system of claim 8 wherein the alarm is configured to be triggered when the first output voltage appearing on the first output node of the first comparator exceeds a first threshold value or when the second output voltage appearing on the second output node of the second comparator exceeds a second threshold value.

10. (Original) The system of claim 8 further comprising a beam splitter configured to cause light from the source to illuminate separate portions of the porous substrate.

11. (Previously Presented) A method for detecting leakage of a hypergolic fuel system, the method comprising:

monitoring an intensity of first reflected light from a first portion of a colorimetric chemical monitor with a first optical detector of an optical reader;

monitoring an intensity of second reflected light from a second portion of the colorimetric chemical monitor with a second optical detector of the optical reader; and

determining a fuel leak when the intensity of first reflected light drops below a first predetermined threshold or when the intensity of second reflected light drops below a second predetermined threshold,

wherein there are different reagents in the first and second portions.

12. (Previously Presented) The method of claim 11 wherein the colorimetric chemical monitor comprises a porous substrate impregnated with mercurous chloride/methylcellulose reagent in either the first or second portion.

13. (Currently Amended) The method of claim 11 wherein the colorimetric chemical ~~monitor~~ monitor comprises a porous substrate impregnated with N-phenylanthranilic acid/titanium dioxide reagent in[[,]] either the first or second portion.

14. (Previously Presented) The method of claim 11 wherein the colorimetric chemical monitor comprises a porous substrate impregnated with N-phenylanthranilic acid/titanium dioxide reagent, and wherein a portion of the porous substrate is impregnated with mercurous chloride/methylcellulose reagent.

15. (Previously Presented) The method of claim 14 wherein the porous substrate comprises paper.

16. (Previously Presented) The method of claim 11 further comprising:

illuminating, with a light source, a first surface of a porous substrate impregnated with a first reagent reactive with a hypergolic fuel component;

illuminating, with the light source, a second surface of the porous substrate impregnated with a second reagent reactive with a hypergolic fuel component;

receiving, with the first optical detector, light reflected from the first surface of the porous substrate;

receiving, with the second optical detector, light reflected from the second surface of the porous substrate;

outputting, with the first optical detector, a first voltage proportional to the intensity of first reflected light in response to the receiving, with the first optical detector; and

outputting, with the second optical detector, a second voltage proportional to the intensity of second reflected light in response to the receiving, with the second optical

detector,

wherein the first surface is the first portion, and the second surface is the second portion.

17. (Previously Presented) The method of claim 16 wherein the illuminating, with a light source, a first surface comprises emitting, with a light emitting diode, light having a wavelength of about 455 nm.

18. (Currently Amended) The method of claim 16 wherein determining a ~~hel~~ fuel leak comprises[[ ]]:

providing a first reference voltage to a first input node of a first comparator, the first reference voltage corresponding to a first voltage output by the first optical detector receiving light reflected from the first surface of the porous substrate in the absence of a hypergolic fuel component;

providing a second reference voltage to a third input node of a second comparator, the second reference voltage corresponding to a second voltage output by the second optical detector receiving light reflected from the second surface of the porous substrate in the absence of a hypergolic fuel component;

providing the first voltage output by the first optical detector receiving light reflected from the first surface of the porous substrate from the first optical detector to a second input node of the first comparator;

providing the second voltage output by the second optical detector receiving light reflected from the second surface of the porous substrate from the second optical detector to a fourth input node of the second comparator;

measuring a first output voltage produced at a first output node of the first comparator; and

measuring a second output voltage produced at a second output node of the second comparator.

19. (Original) The method of claim 11 further comprising generating an alarm when a fuel leak is determined.

20. (Cancelled).